ON THE

INDUCTION OF PREMATURE LABOR

IN THE

ALBUMINURIA OF PREGNANCY.

BY

FORDYCE BARKER, M.D., LL.D.

Reprinted from the American Journal of Obstetrics and Diseases of Women and Children, *Vol. XI., No. III., July*, 1878.

NEW YORK:
WILLIAM WOOD & CO., 27 GREAT JONES STREET.
1878.

ON THE

INDUCTION OF PREMATURE LABOR

IN THE

ALBUMINURIA OF PREGNANCY.

BY

FORDYCE BARKER, M.D., LL.D.

It was quite out of my power to attend two meetings of the Obstetrical Society of this city, at which the subject that gives the title to this paper was discussed.[1] As I am informed that several of my friends, whose ability, acquirements, and position in the profession justly carry great weight in the expression of their views, advocated this procedure under circumstances where I could not sanction it, I feel called upon to give the reasons of my dissent, particularly as but little was said on the other side by those present, who differed from what appears to have been the general sentiment of the society.

I infer that, within two or three years past, there has been a growing tendency in the profession of this city to a frequent resort to the induction of premature labor in cases of albuminuria, from the fact that, since October, 1876, I have met other gentlemen in nine cases, the main object of the consultation being to decide as to the propriety and necessity of this operation. In eight of these cases, the pregnancy was allowed

[1] March 19th and April 18th, 1878.

to go on; no convulsions occurred, and all the labors terminated happily as regards both mother and child.

In the ninth case, the patient, a primipara, was believed to be seven months and three weeks pregnant. The urine was scanty and highly albuminous; there was some swelling of the feet and ankles, but there was no headache or pain anywhere, or nausea. In all respects she seemed to be in excellent health, except as regards the renal secretion. After a full and frank discussion with my friend, the attending physician, we quite disagreed as to the necessity or the propriety of inducing premature labor. As I subsequently learned, labor was brought on two days after our interview; she was delivered of a small, living child, and made a good convalescence. The case is described in the condensed report of the Proceedings of the Obstetrical Society, published in the May number of the *New York Medical Journal*. In this case, I think both patient and physician are to be congratulated on the happy results of the operation, and I presume no one will ever dispute any claim of priority which may be urged by my friend, as having made the first report of the induction of premature labor under the circumstances which have just been described.

I know of no obstetrician at the present day, who does not believe that the induction of premature labor is a duty in a limited class of cases of albuminuria, where it becomes necessary to save either the life of the mother or the child. But I think most obstetricians believe that the necessity must be demonstrated by other symptoms than those alone which are found from the examination of the urine. I do not know of a single writer, in any language, who has advocated this procedure solely on the ground that the urine is highly albuminous, and that every specimen contains hyaline casts.

I think all will agree that the chief object proposed to be obtained by the operation is the prevention of convulsions. If it had been demonstrated that a large proportion of cases of albuminuria during pregnancy results in convulsions, either before, during, or after labor, then the argument in favor of the operation, because the urine is highly albuminous, would have great force. But in a very large proportion of cases of albuminuria during pregnancy, convulsions do not occur.

Blot and Litzman found albumen in the urine in 20 per cent of pregnant women; but no other observers have found anything like this proportion. Accurate statistics have not been accumulated in sufficient numbers to settle this question, but my own researches have led me to the conclusion that it occurs in about 4 per cent, or 1 in 25 women.

Authors differ greatly as to the comparative frequency of puerperal convulsions. In 38,306 labors reported by English authors, convulsions occurred once in 485 cases. Schroeder states that eclampsia is met with once in about 500 deliveries. Other writers have estimated the frequency as great as once in 350 cases. It varies greatly in different years, different seasons, and different localities. Cazeaux states that, while serving as *interne* in *Hotel Dieu*, he saw but 3 cases in 2,000 labors; but that in four months, in 1846, in his service at the *Hopital Clinique*, he had 7 cases. My own experience has been of a similar character. On one day in the winter of 1870, I saw three cases in consultation in private practice, and two others in my service in Bellevue Hospital. On another day of the same week, I saw three cases in consultation. No one will claim that there is such a variation in the frequency of albuminuria.

Now, if we make the lowest estimate of the frequency of albuminuria in pregnancy as 4 per cent, or 1 in 25, and the frequency of convulsions, as 1 in 350, the highest estimate, the chances of convulsions in albuminuria would seem to be as 1 to 14. But if we recall the fact that many cases of convulsions occur during labor, in patients in whose cases repeated examinations have failed to detect any evidence of renal disturbance until after the eclampsia, the chances of convulsions in albuminuria would seem to be considerably less than the above estimate.

In connection with this statement, let us look at another fact. A large majority of cases of eclampsia occur during and after labor. Schroeder states that, in 316 cases, convulsions came on during pregnancy in 62, 190 times during labor, and 64 times after labor, and I think, from my own researches, made twenty-three years ago,[1] that this is not far from the usual proportion. In many cases, the evidence of renal disturbance first appears

[1] Trans. of the N. Y. Acad. of Med., Vol. I., p. 273.

after the convulsion. The exciting cause of convulsions in these cases must be developed by labor.

The views of Traube and Rosenstein as to the etiology of puerperal convulsion seem in a qualified degree to be accepted by most recent writers on the subject, whether German, French, or English. But even if these views be modified by future investigations, the fact cannot be doubted, that the act of parturition, and the consequent disturbances of the circulation, exert great influence in developing eclampsia. If, therefore, the chances of eclampsia in albuminuria be as 1 to 14, or, to make the statement still stronger, we will say 1 in 5, we have sound reasons to infer that these chances would be greatly increased by an induced labor. It cannot be doubted that, in a large number of cases of albuminuria, even where albuminuria has been the predisposing cause, its existence has not been recognized, nor has the patient received treatment for this affection, previous to the explosion of the convulsions. Furthermore, the evidence cannot be called in question that, in a considerable percentage of eclampsia, the renal disturbances follow, but are not antecedent to the convulsions. Hence, sound reasoning would dictate that, when the albuminuria has been detected, this morbid condition should be cured before labor if we have at command resources by which this end can be accomplished.

Hence two questions naturally suggest themselves:

1st. Does parturition cure the albuminuria, and secure a probable immunity against convulsion?

This can never be expected in those cases where the albuminuria is the result of structural changes of the kidney, included under the term Bright's Disease. While it may be conceded that in a majority of cases of the temporary albuminuria of pregnancy, all evidence of renal disturbance rapidly disappears after labor, this is not always the fact, as the history of two cases will illustrate. In one case, labor was induced; in the other, it was spontaneous. Both were very instructive to me, as they suggested new points in regard to the etiology of convulsions which had never before occurred to my mind.

On the morning of Saturday, Jan. 27th, 1877, a physician called on me to ask me to visit, at the earliest possible hour, a lady in the

upper part of the city, for the purpose of discussing with himself and another physician the propriety of inducing labor in a case of albuminuria. As a sister-in-law had just died at my house, and as the wife of my partner was then extremely ill, I was compelled to decline. At 4 o'clock, on the morning of the 29th, I was again summoned to see the case; I found her gasping and struggling for breath, with striking symptoms of what I regarded as pulmonary thrombosis. She died within a half-hour after my arrival. I then obtained the following history. The age of the lady was twenty, married thirteen months, and supposed to be in the eighth month of pregnancy. With the exception of some edema in the face, which her husband had noticed for several mornings, but which disappeared during the day, and a good deal of swelling of the lower extremities, she regarded herself as quite well, up to Wednesday, Jan. 25th. She had seen no physician since her pregnancy began, nor had she as yet selected her accoucheur. On the afternoon of this day, she had taken a long drive in the Central Park; on her return home, she suddenly complained of dizziness and imperfect vision, expressed great alarm, and soon had nausea and vomited. A highly intelligent physician, residing in the same street, was at once summoned. He, suspecting albuminuria, asked for consultation, and a gentleman of large obstetric experience was called in consultation. On questioning the patient, she could not recollect that she had passed water since rising in the morning, but as she felt no necessity of doing so, she positively refused to have a catheter passed. A drachm of the compound jalap powder, with five grains of calomel, was given. Soon after taking the powder, she fell asleep, not waking for three hours, when she passed about eight ounces of urine. One hour after this, a very free cathartic action took place, after which she slept until nearly eight in the morning. She expressed herself as feeling well, except that she had a great disgust for food, her appetite before this having been unusually good. On examination of the urine, it was found to have a specific gravity of 1.012, and on testing it with heat and nitric acid, nearly one-half solidified. One drachm of the citrate of potassa was ordered to be taken every third hour. On Friday, the 26th, other and more active, but not very efficient diuretics were ordered. In the evening, it was found that the quantity of urine was decidedly increased, but, at the same time, the proportion of albumen was much greater, so that it was estimated to be about 75 per cent. She slept well that night, but, on waking, she complained of headache and soon after of nausea, and vomited freely. She looked badly, complained of feeling very weak, and her pulse was small, weak, and 120 per minute. A third physician was added to the consultation. She was cupped over the loins, the acetate was substituted for the citrate of potassa, in half-drachm doses, with 5 drops of the tincture of digitalis every third hour. At the evening consultation, there was found to be no essential change in her condition, and it was then decided that a flexible catheter should immediately be passed into the cavity of the uterus. This was done at 10 P.M. At 7 A.M., Jan. 28th, she began to have some uterine contractions. At 2 P.M., a vaginal injection of hot water was

given continuously for fifteen minutes. After this, the uterine contractions were regular, although not attended with much pain. At 7 P.M. the membranes ruptured, and "an enormous discharge of waters followed." At quarter before 8, she gave birth to a small but healthy child, which weighed a trifle less than five pounds. She complained so little of pain that no anesthestic was used during the labor. There was considerable, though not excessive hemorrhage before the delivery of the placenta, but after this, the uterus remained well contracted. The patient expressed great pleasure on seeing her child, and asserted that she felt perfectly well. She then slept quietly about an hour, when she had a convulsion. Chloroform was then administered to the degree of moderate anesthesia for a half-hour. At 11 P.M., she had a second convulsion, which was described as very severe. She was then kept profoundly anesthetized for an hour. She had no convulsions after this, but remained "in a kind of comatose sleep, until half-past 2 A.M., when she awoke and faintly asked to see her baby. Soon after, she began to gasp and struggle for breath, and her pulse was found suddenly to become feeble and irregular, 140 per minute. Two physicians had remained at the house during the night, and a telegraph boy was sent with a carriage for the third, but as he was not at home, it was sent for me.

It is evident that the induction of premature labor in this case was a grave error. We have all discussed it together very freely, and I am warranted in saying that we are entirely agreed that more efficient measures for relieving the renal disturbances should have been perseveringly tried, before resorting to this operation.

For the purpose of comparison, I will give a very brief sketch of the essential points of another case.

At 11 A.M., October 26th, 1877, I was urgently summoned to see a lady who had given birth, the evening before, to her third child. On entering the room, she gave me her hand and uttered a few words of recognition, but this was the last time that she attempted to speak. On putting my fingers on her pulse, I found it very feeble, irregular, and rapid. I asked to have the Venetian blinds thrown open, and the window curtains raised, when I observed an intense redness of the face, neck, arms, and hands, and my first impression was that the case was one of intensely malignant scarlet fever, as I have before met with two rapid deaths in puerperal women from this cause. But on placing the thermometer in the axilla, and finding it registered but 99°, this theory was at once given up. In the mean time her physician was giving me a rapid sketch of the previous history of the case. The lady was the daughter of a most eminent gynecologist. She was a lovely character, a universal favorite in society, and of a most bright and cheerful temperament, but for some weeks previously she had suffered much fatigue and mental

anxiety from the illness of one of her children. Her medical attendant was an intimate friend of the family, and an able and accomplished physician. A few weeks before, some symptoms of not a very marked character had led him to make an examination of the urine, which he found highly albuminous. He had treated her so successfully that the symptoms of albuminuria had wholly disappeared, and there could only be discovered occasionally a trace of albumen in the urine, but she was still very anemic. On the morning of the 25th, while her physician was visiting her child, she mentioned that she had some pain in the back and pressure downward. About five in the afternoon, he again called to see the child, when she expressed the suspicion that her labor was coming on, and he asked for an examination. She had hardly time to get herself arranged in bed, before a living, active child was born. To use his own words, "the delivery was so rapid and painless, that it could not be called a labor." The placenta soon followed, and the uterus contracted well. The patient was in the best of spirits, and full of fun. Late in the evening, the doctor visited her again, and found that she had passed water freely, and was doing well in every respect. She slept well during the night, and was so well the next morning that she insisted that her husband should not remain with her, but go to his business. The doctor called about ten the next morning, when, in answer to his inquiry, she languidly answered that she was very well, but felt cross-eyed. On examination, he found that she was cross-eyed, and on feeling her pulse he was shocked by its bad character. On further inquiry, he learned that she had passed no urine since the evening before. He immediately introduced a catheter, but the bladder did not contain more than a drachm or two of urine. He at once directed that one of the carriages standing in front of the hotel opposite should be sent for me. I had not been in the room ten minutes, when she was seized with a convulsion. A hypodermic injection of one-third of a grain of morphia was at once administered, when the convulsion soon ceased. The intense redness of the surface disappeared, and for a few moments the character of the pulse was greatly improved. But this improvement was of short duration. It is not necessary for the purpose of this paper to describe in detail the active measures which were vainly resorted to for the purpose of relieving the overwhelmed brain, and restoring the powers of the feeble heart. She was never conscious two minutes after I entered the room, and life became extinct about five in the afternoon.

The practical question we are now discussing is, whether the induction of premature labor should be adopted as a rule of practice in albuminuria, as a security against eclampsia which may dangerously threaten life. Let me here say that experience has fully demonstrated the fact, that the quantity of albumen in the urine bears no relation to the violence of the eclampsia. In these two cases, convulsions occurred after

labor; in the one, labor was induced; in the other, it came on spontaneously. In the former, the kidneys, having been subjected to intense pressure during the latter periods of pregnancy, are suddenly relieved by the escape of the excessive amniotic fluid and emptying of the uterus, and there follows an influx of blood into the half-paralyzed vessels of the kidneys —a temporary but most effective congestion. Cerebral anemia and serous edema were the consequences of this condition of the kidneys. Cardiac asthenia necessarily resulted from the cerebral asthenia, and, the conditions of hyperinosis and inopexia already existing, pulmonary thrombosis naturally followed.

In the latter case, the sudden removal of the pressure upon the kidneys, and the consequent intense congestion, induced complete ischuria, which was followed by acute uremia and paralysis of the vaso-motor system, as shown by the stasis of the capillary circulation of the surface. The intense uremia so overwhelmed the vaso-motor system that the irritation of the true spinal system produced its effects only in a moderate degree, and death rapidly ensued. I presume most physicians of large experience have met with cases, as the reports of many such can be found in obstetric literature, in which there has been an excessive amount of amniotic fluid, and after delivery the face has become flushed, the eyes fixed, the veins tense, and the woman suddenly becomes insensible, comatose, and violently convulsed.

There are other dangers from induced labor, so obvious that it is unnecessary for me to allude to them here.

2d. Has experience demonstrated that treatment can be made effective in curing the temporary albuminuria of pregnancy?

On this point Tyler Smith remarks, "It has been said that this disorder cannot be arrested during pregnancy, but I have never met with a case that resisted treatment, unless it had been neglected until towards the close of gestation."[1] I may be permitted to quote my own comments on the above statement, published four years since:[2] "While my experience will not warrant me in making so strong an assertion, yet I can truly

[1] Lectures in Obstetrics, Am. Ed., p. 154.
[2] Barker on Puerperal Diseases, p. 114.

affirm that I now rarely encounter puerperal convulsions, where the previous detection of albuminuria has led me to be particularly apprehensive of their occurrence. Indeed, I will go farther, and say that in most cases, where any of the predisposing causes that I have mentioned are discovered sufficiently early, they may be successfully treated, and convulsions will occur only in a small percentage."

I will not discuss this treatment of albuminuria in detail, as I have already done so in the work from which I have quoted; but as illustrating how effective treatment may be, even in the most intense and gravest forms of this disorder, I will give the brief history of a case in which I was associated in the treatment of it with the father and brother of the patient.

In November last, I was asked to see Mrs. ——, who was supposed to be nearly eight months advanced in her first pregnancy. She had a remarkably bright intellect, and was naturally of a very cheerful temperament, but at this time she was a good deal depressed on account of her loss of sight, which had been coming on for a few days previously. At the time of my first visit, she could not distinguish persons, or tell the number of fingers held before her eyes. In fact, the amaurosis was nearly complete. She was confined to her bed by weakness; her pulse was rapid, ranging for ten days from 92 to 110; the face was moderately edematous, and she complained of headache, anorexia, and occasional nausea. The urine had been albuminous for some days, and the specimen which I saw, on my first visit, was estimated by all of us to be at least 85 per cent albumen. Not more than twelve ounces was supposed to have been passed in the previous twenty-four hours. Chiefly on account of the amaurosis and the danger of permanent blindness, we seriously discussed the question of the immediate induction of labor, but we finally decided to make a trial of other treatment for some days, before resorting to this measure. It is unnecessary to give in detail the treatment from day to day. The first means was venesection to the amount of about twenty ounces. Then blisters to the nape of the neck and over the temples. A drachm and a half of the compound powder of jalap was given every alternate morning. The acetate of potassa and digitalis in full doses, and subsequently the tincture of the muriate of iron were the medicines that were mainly relied upon, and she was kept rigidly on a milk diet. For three days, there was but little change as to the amount of albumen or the quantity of urine passed, while at the same time she seemed to lose strength, and her pulse became more frequent. Naturally both her father and herself became somewhat despondent from seeing no immediate result from the treatment. But after this, the improvement wa very rapid in every respect. The secretion of urine became abund

ant, and contained only a trace of albumen, the headache disappeared, and after sixteen days, her sight was so entirely restored that she could read ordinary print easily, and my attendance practically ceased. I was not with her at the time of her accouchement, but I saw her soon after it terminated. It was probably premature by about two weeks, and was more rapid than most first labors. The placenta was adherent, and as considerable hemorrhage followed the birth of the child, her physician introduced his hand into the cavity of the uterus, detached the placenta, and removed it at once. A drachm of Squibb's fluid extract of ergot was given, and she had very little hemorrhage afterwards. She had no convulsions, either before, during, or after labor. All subsequent illness that she had seemed wholly due to the hemorrhage and the traumatic lesions incident to the labor.

I have seen several cases in which albuminuric amaurosis has disappeared at varying periods after parturition, but this is the only one in which I have seen the sight quite restored before labor. Indeed, I may add, I am not aware that any similar case has ever been published. I shall offer no comments on this case, as I think every one will agree that it needs none.

I trust that no one will draw the conclusion, from what I have written above, that I do not regard the induction of premature labor as ever a justifiable measure. On the contrary, I deem it an imperative duty to resort to this operation, when treatment has been thoroughly and perseveringly tried without success for the removal of symptoms of so grave a character, that there is a strong probability that their continuance would result in the death of the patient. In six of my own patients, and in four that I have seen in consultation, I have advised this operation. I may mention, as a curious fact, that four of these cases occurred within a period of five months, while, since November, 1874, I have seen many cases of albuminuria, yet I have not thought it necessary to resort to this operation in a single one.

Inasmuch as there are a few in our profession who are more influenced in their views of treatment by the weight of names which sanction any special mode of practice than by the force of analytical and logical reasoning, it may be well to add a few words as regards the historical aspect of this question. It is now twenty-one years since Braun first advocated the induction of premature labor in albuminuria, and the suggestion was a natural outcome of his exclusive

views as to the etiology of eclampsia. His proposal was severely criticised by his German contemporaries who wrote on the subject, and of late years nothing has appeared from his pen relating to it. I therefore infer that his views have been essentially modified in this respect. Some years later, Tarnier urged this operation for the treatment of albuminuria, but recently he more cautiously expresses the opinion "that it may be serviceable in exceptional cases."[1] I am not aware that any of the later German writers advocate the treatment proposed by Braun. Spiegelberg, in his great work, the second volume of which has been published this year, says, in speaking of the treatment of albuminuria, "in its outbreak during pregnancy, an obstetrical treatment, especially the induction of premature labor, cannot be entertained."[2]

[1] L'Art des Accouchements, par P. Cazeaux, 9th Ed. Revue et annotée par S. Tarnier, p. 841. Paris, 1874.

[2] Lehrbuch der Geburtshülfe von Dr. Otto Spiegelberg, p. 568.